

REMARKS

The application includes claims 1, 5-13, 15, 17 and 19-22 prior to entering this amendment. Claims 23-26 are withdrawn.

In this reply, applicant amends claims 1, 5, 6, 8, 9, 13 and 17. No new claims are added. The application remains with claims 1, 5-13, 15, 17, 19-22 pending after entering this amendment.

The above amendments are made without prejudice or disclaimer. The amendments are made to more clearly delineate intended subject matter. Accordingly, the applicant does not intend to surrender claimed subject matter by submission of the above amendments and does not add new matter. The applicant respectfully requests reconsideration of the above referenced patent application in view of the following remarks.

Claim Rejections - 35 U.S.C. § 103

The examiner rejected claims 1, 5-13, 15, 17 and 19-22 under Section 103(a) as allegedly unpatentable over Van der Schaar et al. ("Van") in view of Mishra. The examiner also cites Parkkinen et al. (US 2003/0206558) in the body of the office action.¹ Applicant respectfully traverses the examiner's rejections for at least the reasons explained herein and respectfully requests that the examiner withdraw the rejection of claims 1, 5-13, 15, 17 and 19-22 for these reasons.

Van in view of Mishra and Parkkinen does not teach sending a base layer and an enhancement layer in different time periods based on bandwidth availability in the different time periods

Amended Claim1 recites, in pertinent part:

transmitting the base layer in a single stream to the transmission
channel in a first time period;
~~recording bandwidth used by the transmission of the base~~
layer;

¹ Office action, page 3.
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selecting a second time period for transmitting the enhancement layer, where the first time period is different from the second time period and where the second time period is selected based at least in part on a determination that there is available bandwidth for transmission of the enhancement layer in the second time period;

transmitting the enhancement layer in the second time period if there is available bandwidth;

The applicant claims a method of data transmission scheduling where an encoded base layer and an encoded enhancement layer are *sent in different time periods based at least in part on bandwidth availability for the particular time period during which the layer is sent*. The current application claims a base layer capable of providing a minimum of data needed to transmit a recognizable signal where the base layer is transmitted in a transmission channel during in *a first time period*. Then an enhancement layer *may* be added during a second time period to improve the quality of the received signal *if there is available bandwidth in the second time period*.²

The applicant's method avoids the inefficiencies of the conventional scheduling methods because if there is available bandwidth in the transmission channel, the quality of the data transmitted may be enhanced and when bandwidth is in short supply at least a minimum of data is transmitted to send a recognizable signal. Importantly, in the applicant's method the enhancement of the signal is not constrained by the bandwidth availability during the initial bursting period.³ Thus, the quality of the signal does not *only* depend on the available bandwidth at the time of the initial encoded data transmission. The applicant's claimed method provides that the signal may *improve over time* by determining *at a different time from the original transmission of the base layer* that there is additional bandwidth available and then sending the enhancement layer using the available bandwidth in a second time period.

In contrast, neither Van nor Mishra teach enhancing the quality of a signal by sending a base layer and an enhancement layer in different time periods *based at least in part on bandwidth availability of the different time period*. Accordingly, Van teaches transmitting a base layer and an enhancement layer where the base layer and the enhancement layer *share a*

² Claim 1 and Specification, paragraphs [0010], [0024], [0025] and [0039].

³ Specification, paragraph [0008].

currently available bandwidth maximum.⁴ In other words, Van teaches transmitting an encoded base layer and an encoded enhancement layer where encoding is rate based and where the rate is based on a *single* bandwidth calculation taken at a time *prior* to encoding and sending both the base layer and enhancement layer.⁵ Thus, Van cannot disclose *transmitting the base layer in a first time period and selecting a second time period for transmitting the enhancement layer, where the first time period is different from the second time period and where the second time period is selected based at least in part on a determination that there is available bandwidth for transmission of the enhancement layer in the second time period* as is claimed in claim 1. Thus, claim 1 is distinguishable from Van.

Mishra does not cure the deficiencies of Van. Nothing in the fair bandwidth sharing method taught in Mishra discloses *encoding a base layer and an enhancement layer and transmitting each in different time periods based on measured bandwidth availability during the different time periods*.

The method in Mishra of adjusting video quality based on the level of congestion in a network does not supply the recited feature missing from Van. This feature of claim 1 addresses how the signal quality is adjusted and improved. In Mishra, video quality is adjusted by varying a quantization step responsive to network congestion status. Varying a quantization step is not the same as enhancing signal quality by *encoding a base layer and an enhancement layer and transmitting each in different time periods based on a measured bandwidth availability during the different time periods*. More specifically, transmitting a base layer and an enhancement layer in different time periods based on a measured bandwidth availability during the different time periods is missing from both Van and Mishra. Thus, Mishra cannot cure the deficiencies of Van and claim 1 is distinguishable from Van in view of Mishra.

The examiner also cites Parkkinen et al. (US Pat. No. 7072366). Parkkinen discloses a method for scalable encoding and multiplexing of media streams.⁶ Media streams in Parkkinen are multiplexed prior to transmission.⁷ Nothing in Parkkinen discloses encoded base and enhancement layers transmitted in different time periods based on bandwidth availability during the different time periods. Thus, Parkkinen also does not cure the deficiencies of Van and Mishra.

⁴Van, col. 3, lines 11-26 and col. 5, lines 16-38 and Fig.1.

⁵Van, col. 3, lines 11-26 and col. 5, lines 16-38 and Fig.1.

⁶Parkkinen, Abstract.

⁷Parkkinen, Abstract and col. 1, lines 5-55.

Therefore, claim 1 is distinguishable from Van in view of Mishra and Parkkinen and should be allowed. Claims 5-12 depend from claim 1 and distinguish from Van, Mishra, and Parkkinen for the same or similar reasons and should also be allowed.

Amended claim 13 has similar features to the features of claim 1 and is distinguishable from Van, Mishra and Parkkinen for the same or similar reasons and should be allowed. Claim 15 depends from claim 13 and distinguishes from Van, Mishra, and Parkkinen for the same or similar reasons and should also be allowed.

Amended claim 17 has similar features to the features of claim 1 and is distinguishable from Van, Mishra and Parkkinen for the same or similar reasons and should be allowed. Claims 19-22 depend from claim 17 and distinguish from Van, Mishra, and Parkkinen for the same or similar reasons and should also be allowed.

Van in view of Mishra and Parkkinen does not teach an encoder for encoding all of the data received in the data stream independent of a rate control process

Amended Claim1 recites, in pertinent part:

an encoder having an input for receiving a single data stream and configured to encode the data stream into a base layer and at least one enhancement layer where the encoder encodes all of the data received in the data stream independent of a rate control process for encoding data;

The applicant claims a method for encoding all of the data received in a data stream independent of a rate control algorithm to encode the data. The data, as discussed above, is divided into base and enhancement layers where the base layer provides a minimum of data required to transmit a recognizable signal. The claimed method avoids the inefficiencies of the conventional encoding schemes where rate control algorithms enable transmission of small to medium amounts of data at specified channel target bit rates. However, data requiring more than average amounts of encoding encounter problems on transmission across an allocated bandwidth.

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Van in view of Mishra and Parkkinen does not teach “an encoder having an input for receiving a single data stream and configured to encode the data stream into a base layer and at least one enhancement layer where the encoder encodes all of the data received in the data stream independent of a rate control process for encoding data” as is claimed in claim 17. All three references teach using a rate control process to encode data for transmission in a network.⁹ Thus, claim 17 is distinguishable from Van in view of Mishra and Parkkinen for this additional reason and should be allowed.

Claims 19-22 depend from claim 17 and are distinguishable from Van in view of Mishra and Parkkinen for the same additional reason as claim 17 and should also be allowed.

The applicant believes that the claimed subject matter is patentably distinguishable from Van in view of Mishra and Parkkinen for additional reasons; however, because the forgoing is believed to be sufficient, the applicant chooses to omit them at this time. Likewise, applicant's failure to comment directly upon any of the positions asserted by the examiner in the current office action does not indicate agreement or acquiescence with those asserted positions. Rather, the examiner's positions are rendered moot by the foregoing and, therefore, it is not necessary to respond to every position taken by the examiner with which the applicant's do not agree.

⁹ Van, col. 3, lines 11-26 and col. 5, lines 16-38 and Fig.1; Mishra, col. 3, lines 10-14 Parkkinen, Abstract and col. 1, lines 5-55.

Conclusion

For the foregoing reasons, reconsideration and allowance of all of the pending claims 1, 5-13, 15, 17, 19-22 is requested. The Examiner is encouraged to telephone the undersigned at (503) 224-2170 [ext. 204] if any issues remain.

Customer No. 73496

Respectfully submitted,

STOLOWITZ FORD COWGER LLP

/Micah D. Stelowitz/

Micah D. Stelowitz

Reg. No. 32,758

STOLOWITZ FORD COWGER LLP
621 SW Morrison Street, Suite 600
Portland, OR 97205
(503) 224-2170